AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A dielectrophoretic (DEP) cell in which particles can be characterized, manipulated and separated comprising an array of elongated electrodes, and means to apply at least one electrical signal to the electrodes, in which each electrode has a notional central axis along its direction of elongation, each electrode has one or more deflections from the notional central axis, and the electrodes in the array being in register and inter-electrode spacing variation gives rise to at least one particle channel.

2. (Original) A DEP cell according to Claim 1 in which the electrodes are serpentine in shape.

3. (Previously Presented) A DEP cell according to Claim 2 in which the electrodes are sinusoidal in shape.

4. (Currently Amended) ~~A DEP cell according to Claim 2 in which the~~ A dielectrophoretic (DEP) cell in which particles can be characterized, manipulated and separated comprising an array of elongated electrodes, and means to apply at least one electrical signal to the electrodes, in which each electrode has a notional central axis along its direction of elongation, each electrode has one or more

deflections from the notional central axis, and the electrodes in the array being in register, wherein the electrodes are serpentine in shape, and wherein the electrodes are half sinusoidal in shape.

5. (Currently Amended) ~~A DEP cell according to Claim 2 in which~~ A dielectrophoretic (DEP) cell in which particles can be characterized, manipulated and separated comprising an array of elongated electrodes, and means to apply at least one electrical signal to the electrodes, in which each electrode has a notional central axis along its direction of elongation, each electrode has one or more deflections from the notional central axis, and the electrodes in the array being in register, wherein the electrodes are serpentine in shape, and wherein the electrodes are of elongated "C" shape.

6. (Currently Amended) ~~A DEP cell according to Claim 2 in which~~ A dielectrophoretic (DEP) cell in which particles can be characterized, manipulated and separated comprising an array of elongated electrodes, and means to apply at least one electrical signal to the electrodes, in which each electrode has a notional central axis along its direction of elongation, each electrode has one or more deflections from the notional central axis, and the electrodes in the array

being in register, wherein the electrodes are serpentine in shape, and wherein the electrodes are single half sinusoids connected between straight side arms.

7. (Original) A DEP cell according to Claim 1 in which the electrodes are zig-zag in shape.

8. (Original) A DEP cell according to Claim 1 in which the electrodes are straight line approximations to sinusoids.

9. (Previously Presented) A DEP cell according to any one of Claims 2, 3, 7 or 8 in which curvature of the deflections from the notional central axis on a first side is different from a curvature of the deflections on a second side, whereby particle transport channels of different width are provided.

10. (Previously Presented) A DEP cell according to Claim 1, 2, 7 or 8 in which positions of maximum curvature of each electrode are arranged in linear alignment.

11. (Previously Presented) A DEP cell according to Claim 1, 2, 7 or 8 in which positions of maximum curvature of each electrode are arranged in non-linear alignment.

12. (Original) A DEP cell according to Claim 11 in which the positions of maximum curvature of each electrode are arranged along a curve.

13. (Currently Amended) ~~A DEP cell according to Claim 12 in which~~ A dielectrophoretic (DEP) cell in which particles can be characterized, manipulated and separated comprising an array of elongated electrodes, and means to apply at least one electrical signal to the electrodes, in which each electrode has a notional central axis along its direction of elongation, each electrode has one or more deflections from the notional central axis, and the electrodes in the array being in register, wherein positions of maximum curvature of each electrode are arranged in non-linear alignment, wherein the positions of maximum curvature of each electrode are arranged along a curve, and wherein the electrodes are serpentine and each electrode comprises two sinusoids, and positions of maximum curvature of the sinusoids are arranged along divergent curves.

14. (Currently Amended) A dielectrophoretic (DEP) cell in which particles can be characterized, manipulated and separated comprising an array of elongated electrodes, and means to apply at least one electrical signal to the electrodes, in which each electrode has a notional central axis along its direction of elongation, each electrode has one or more deflections from the notional central axis, and the electrodes in the array being in register, wherein the ~~A~~

DEP cell ~~according to any one of Claims 1 to 4 comprising~~ comprises a first central array of sinusoidal or half sinusoidal electrodes, the axes of the electrodes of the first central array being straight and parallel, and a second outer array of sinusoidal or half sinusoidal electrodes, the axes of the electrodes of the second outer array being in the form of nested "U" shapes, there being provided means to apply electrical signals of different phases independently to the first and second arrays.

15. (Canceled).

16. (Currently Amended) ~~A DEP cell according to Claim 1~~ A dielectrophoretic (DEP) cell in which particles can be characterized, manipulated and separated comprising an array of elongated electrodes, and means to apply at least one electrical signal to the electrodes, in which each electrode has a notional central axis along its direction of elongation, each electrode has one or more deflections from the notional central axis, and the electrodes in the array being in register, and in which the electrodes are arranged in pairs with inter-electrode spacing being substantially greater than inter-pair spacing.

17. (Previously Presented) A dielectrophoretic system comprising a DEP cell according to any one of Claims 1, 2, 7

or 8, at least a part of the cell being formed of transparent material; means to illuminate the cell; and means to receive illumination transmitted through or reflected from the cell.

18. (Currently Amended) A dielectrophoretic method comprising placing a suspension of particles in a liquid in a vicinity of an array of elongated electrodes in which each electrode has a notional central axis along its direction of elongation, each electrode has one or more deflections from the notional central axis, and applying at least one electrical signal to the array ~~whereby the particles are included in or excluded from regions of the electrodes corresponding to maximum or minimum electrode curvatures~~ wherein variation of inter-electrode spacing gives rise to at least one particle channel.

19. (Previously Presented) A method according to Claim 18 further comprising selecting a frequency for the electrical signals to cause a negative dielectrophoretic response in a selected particle type in the suspension and providing means to cause the liquid suspension to flow across the electrode array.

20. (Original) A method according to Claim 19 in which said means to cause the liquid suspension to flow is an electrical signal applied to the electrode array.

21. (Previously Presented) A method according to Claim 18 further comprising applying electrical signals at different phases to the electrodes, whereby a traveling wave electric field is generated which induces a traveling wave DEP force on said particles, with a real part of said force levitating the particles, and an imaginary part thereof causing the particles to move into certain regions of the traveling field.

22. (Previously Presented) A method according to Claim 21 further comprising an initial step of applying to the electrode array an electrical signal whereby a static DEP field is generated so as to cause initial levitation of the particles.

23. (Previously Presented) A method according to Claim 21 further comprising an initial step of applying to the electrode array an electrical signal whereby a traveling wave electric field is generated at a frequency such that the particles are initially levitated but experience no translational force.

24. (Previously Presented) A method according to Claim 18 in which the suspension comprises a suspension of first and second types of particles, with concentrations of the types of particles differing by a factor of at least 1000, and in which the array of electrodes has a shape selected so that the types of particles are separated.

25. (Previously Presented) A method according to Claim 24 in which the shape of the array of electrodes is selected to prevent particles from contacting a mechanical constraint on liquid flow.

26. (Previously Presented) A method according to Claim 18 in which concentration of the suspension of particles is greater than one million cells per milliliter.

27. (Canceled).

28. (New) A DEP cell according to claim 18 wherein said at least one channel comprises at least two aligned channels.

29. (New) A DEP cell according to claim 28 wherein adjacent channels of said at least two aligned channels are for particle transport in opposite directions.

30. (New) A DEP cell according to Claim 14 in which the electrodes are serpentine in shape.

31. (New) A DEP cell according to Claim 30 in which the electrodes are sinusoidal in shape.

32. (New) A DEP cell according to Claim 30 in which the electrodes are half sinusoidal in shape.

33. (New) A DEP cell according to Claim 13 in which the electrodes are serpentine in shape.

34. (New) A DEP cell according to Claim 13 in which the electrodes are zig-zag in shape.

35. (New) A DEP cell according to Claim 13 in which the electrodes are straight line approximations to sinusoids.